

PROPERTY PLANNING COMMON ELEMENTS

COMPONENTS OF MASTER PLANS

HABITATS AND THEIR MANAGEMENT

Group Selection

Description

Group selection is a method to regenerate and maintain uneven-aged stands by removing some trees at regular intervals. An uneven-aged stand structure is maintained by periodically regenerating new age classes while manipulating the overstory structure to facilitate continual development of quality growing stock. Stand regeneration is achieved by periodically manipulating the overstory and understory to create conditions favorable for establishment and survival of desired tree species. Generally, most regeneration is of seed origin, although a component can be vegetative.

Trees are periodically removed in groups to create conditions favorable for the regeneration and establishment of new age classes (cohorts). Canopy openings for regeneration may range in size from 0.1 to 0.5 acres. Spatial distribution of regeneration openings may be regular or irregular as dictated by variations in stand condition such as the age, size, vigor, quality, composition, and health of groups of trees. Regeneration recruited by past cutting may require release; the remainder of the stand is thinned. Regeneration cuts, release, thinning, and harvesting usually occur simultaneously (time) but can be variable across the stand (space). Area regulation guides age distribution and silvicultural treatments.

Characteristics

- Uneven-aged
- Seed origin
- Overstory never completely removed – periodic removal of groups of overstory trees create gaps to recruit new overstory trees and regeneration.
- The smallest canopy openings are 0.1 acre, equivalent to a 75-foot-diameter circular opening. This size can be large enough to recruit some mid-tolerant species as well as vigorous shrub and herb competition.
- The largest canopy openings are 0.5 acre, equivalent to a 167-foot-diameter circular opening, which is approximately 2X tree height.
- Overstory provides seed source and modifies understory conditions to favor reproduction, competition, and growth of certain species.
- Favors regeneration and maintenance of shade-tolerant and mid-tolerant species; shading effects will vary spatially across the regeneration opening.
- Method allows for variations in regeneration and structure (e.g., age class, composition, density) over space and time.
- Regeneration cuts (canopy opening creation), release, thinning, and harvesting usually occur simultaneously (time) but are variable across the stand (space).



Considerations

General considerations in the application of the single-tree selection method are:

- Site evaluation (suitable to meet nutrient-moisture needs of species)
- Stand composition, size and age class structure, condition, and health
- Potential seed and sprout sources – competition, condition, health
- Advanced regeneration
- Regeneration requirements (moisture, nutrients, light, heat) of desired species
- Competitive abilities of desired species, and potential competition among species
- Overstory impacts on understory light, heat, and moisture availability
- Regeneration openings management:
 - Size of regeneration openings and impacts on composition and growth
 - 0.1- to 0.5-acre openings are equivalent to 75- to 167-foot diameter circular openings
 - Site preparation – seedbed preparation and competition control
- Area regulation
 - Number and distribution of new regeneration openings to release advanced regeneration or establish new regeneration
 - Release and thinning of many different cohorts (age and spatial differentiation)
 - Order and removal of overstory trees for establishment of regeneration openings, release, and thinning
 - Generally, trees retained are the most vigorous crop trees
 - Generally, trees cut (individuals and groups) are high-risk, less vigorous, lower quality, and/or undesirable species
 - Cohort rotation length
 - Cutting cycle and allowable cut
- Protection of residual stems, crowns, root systems, and advanced regeneration from logging damage

Advantages

- Permanent forest with multiple age classes – overstory not completely removed
- Maintenance of permanent overstory allows treatment adjustments and modification if problems arise or objectives are not initially achieved
- Relatively continuous (near) full site occupancy
- Local, known seed source
- Reproduction generally certain
- System favors shade-tolerant and mid-tolerant species; can encourage species diversity



- Periodic improvement of stand quality through judicious tending
- Periodic income can be relatively frequent (sustained yield)

Disadvantages

- Requires technical skill and the need to monitor stand conditions
- Area regulation for many small cohorts can become complex
- Application techniques are not well developed for every species
- May require timing to seed crop for some species
- Site preparation and release may be needed
- Not a good system to regenerate and manage shade-intolerant species
- Careful logging practices required to protect overstory and advanced regeneration; some damage is unavoidable
- Frequent re-entry increases frequency of site disturbance
- Frequent re-entry requires a more extensive and permanent network of access roads and skid trails
- For any given entry, income is less than for complete overstory removal
- Added time and cost for timber sale establishment

